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Abstract Previous research on the impact of traumatic experiences in children and adolescents has focused almost entirely on the effect of single trauma. Research on cumulative traumas has been lacking, but Finkelhor (Child Abuse Negl 31:7–26, 2007) has recently directed the attention to the concept of polyvictimization. As an extension of this concept, this study examined the impact of polytraumatization, operationalized as the number of different potentially traumatic events. The study population comprised two cross-sectional samples of school-aged children (n = 270) and adolescents (n = 400). Information of life-time incidence of traumatic events was collected by the life incidence of traumatic events (LITE), and psychological symptoms by the parent version of the strengths and difficulties questionnaire (SDQ) for the school children and the self-report trauma symptom checklist for children (TSCC) for the adolescents. We found that exposure to at least one traumatic event was common in both the samples (63% of the children and 89.5% of the adolescents). The number of different traumatic events, polytraumatization, was highly predictive of symptoms in both samples, and with a few exceptions surpassed the impact of specific events in exploratory analyses. We furthermore replicated previous findings of the important impact of interpersonal over non-interpersonal events on symptoms in both samples, and found an indication that this effect differed by gender in different manners in the two samples. This study emphasizes the significance of both the quantity of traumatic events, polytraumatization, as well as the quality, interpersonal events.

Key words child traumatization – symptomatology – multiple traumatization – gender differences

Introduction

During the past decades evidence has accumulated on the psychological impact of traumatic experiences on children and adolescents. Traumatic experiences such as sexual abuse [4, 7, 16], physical abuse and violence [27, 29], disaster [12], terrorism [9], and injury [35] have all been found to have a variety of detrimental effects on the psychological well-being of young people. As has been pointed out in research on adults [25] and recently in research on children and adolescents [7, 32] most studies have focused on homogeneous samples in which only a single trauma type

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Table 1 Descriptive statistics of relevant variables

Variable	Younger children (N = 270)	Adolescents (N = 400)
Age		
M (SD)	9.2 (1.7)	15.1 (1.9)
6–9 years, *n* (%)	142 (52.6)	–
10–12 years, *n* (%)	128 (47.4)	–
12–15 years, *n* (%)	–	279 (69.8)
16–20 years, *n* (%)	–	121 (30.3)
Gender		
Girls, *n* (%)	135 (50.0)	191 (47.8)
LITE		
Polytraumatization, *M* (SD)	1.3 (1.4)	3.1 (2.1)
Interpersonal events, *M* (SD)	0.4 (0.8)	1.0 (1.1)
Non-interpersonal events, *M* (SD)	0.9 (1.0)	2.1 (1.4)
Psychological symptoms[a], *M* (SD)	6.9 (5.8)	22.8 (16.1)

LITE life incidence of traumatic events
[a]Younger children = SDQ, total difficulties score; adolescents = TSCC, total score

was studied. It is now evident that this approach has several limitations. First, it prevents us from gaining an understanding of the frequency and severity of traumatic events as they occur in the general population [25]. Second, it disregards findings that traumatic experiences have a tendency to co-occur [6, 7]. Studies only measuring one type thus yield an underestimate of the trauma exposure, and they fail to identify the most exposed groups. Third, this may also lead to a confounded causal attribution due to the failure to identify the effects of unmeasured traumas, and this in turn leads to an overestimate of the impact of the single measured trauma type [7, 32].

An alternative way to investigate the effects of trauma is to first measure the incidence of an array of potentially traumatic experiences, and to then use the number of traumas as a measure of total trauma exposure. The simple count of different adversities has been found to have an important influence on youth development [1, 2, 30]. Studies that have focused on explicitly traumatic events have found that the severity of effects on the mental health of adults [37] and young people [7, 8, 15] is related to the number of traumas experienced in childhood. Finkelhor [7, 8] called this dimension of victimization "polyvictimization". As a broader concept, we propose the term "polytraumatization", not necessarily implying any exposure to criminal events and including non-interpersonal traumatic experiences such as accidents and severe illness. Polytraumatization thus represents the multiple exposures to different traumatic experiences, regardless of source, rather than repetitive incidents or chronic traumas, which also are important in the development of mental disorders in childhood [7, 17, 36]. Recent findings indicate that multiple exposures to different traumas can be even more detrimental than the repeated exposure to a single type of trauma [7].

The polytraumatization model, which considers non-specificity of experiences and effects, may be viewed as complementary to the stressor-outcome specificity model [21], which may identify certain traumas to have particularly harmful consequences [8]. The separation of non-specificity and specificity in considering the effects of traumatic experiences is an important field of study that may yield a better understanding of the complex pathways to adjustment and maladjustment following trauma.

One trauma dimension more or less explicit in the literature is the interpersonal dimension [11, 26]. There is a strong conception based primarily on clinical experience that interpersonal events, such as child maltreatment, are more detrimental for mental well-being than non-interpersonal events (e.g., accidents, illness). However, the differences between interpersonal and non-interpersonal events have been scarcely studied.

The present study is a part of a larger project examining trauma and mental health in children and adolescents. This paper combines the results from studies of two separate cross-sectional samples, one consisting of younger children and one of adolescents. The general aim was to exploratively examine the association between exposure to traumatic events and psychological symptoms in these two samples. Specifically, the first aim was to describe reported incidence of events by age group and gender. The second aim was to examine the influence of polytraumatization on the association between single traumatic events and psychological symptoms. The third aim was to confirm the contrasting impact of interpersonal versus non-interpersonal events on psychological symptoms [14] in an adolescent sample, and to explore gender differences in this relationship.

Methods

Participants

The data is drawn from two separate school samples, one consisting of younger children (6–12 years) and one of adolescents (12–20 years), both studies approved by the Local Ethics Committee. Both samples originated from schools in the municipality of Linköping, Sweden, a city with 140.000 inhabitants. Descriptive statistics of the samples are shown in Table 1.

The sample of the younger children was drawn from preschool through the 6th grade of two elementary schools as part of a larger study concerning stress in children. The two schools were chosen to

Table 2 Frequencies of traumatic events in younger children (N = 262–270) and adolescents (N = 388–400)

LITE item	Younger children		Adolescents	
	n	%	*n*	%
1. Been in a car accident	20	7.4	65	16.4
2. Been hurt in another kind of accident or sick in the hospital	42	16.0	147	37.2
3. Seen someone else get hurt	28	10.5	176	44.6
4. Someone in the family in the hospital (hurt or sick)	84	31.8	215	55.1
5. Someone in the family died	44	16.3	92	23.2
6. Friend very sick, hurt or died	23	8.7	82	20.7
7. Been in a fire	12	4.4	24	6.0
8. Been in a hurricane, tornado, flood, or mudslide	1	0.4	11	2.8
9. Parents (or grown-ups) broke things or hurt each other	14	5.2	46	11.5
10. Parents separated or divorced	53	19.6	103	25.9
11. Been hit, whipped, beaten, or hurt by someone	9	3.4	83	20.9
12. Been tied up, or locked in a small space	4	1.5	13	3.3
13. Been made to do sex things	2	0.7	3	0.8
14. Been threatened (someone said they would do something bad)	17	6.3	85	21.4
15. Been robbed (or house robbed)	2	0.7	46	11.6
16. Other scary or upsetting event	9	3.4	27	7.0

yield a socioeconomically and ethnically diverse sample. One school was situated in the urban fringe and the other in an inner-city area. Questionnaires and informed consent forms were distributed through the schools to all parents, and sent back by mail. Of the 376 children, informed consent was given by 315 (84%, 315/376) parents. Of these, a trauma checklist was completed by parents of 270 children (72%, 270/376), and these comprise the effective sample. The children who declined participation did not differ from the participants in age or gender. There was, however, a lower participation rate from the inner-city school (64%) than from the urban fringe school (85%). The parents also completed a demographic form and a screening questionnaire for child behavioural and emotional problems (below). The gender, ethnical and socioeconomic distributions approximately corresponded to national statistics, and the symptoms scores corresponded to the Swedish standardization of the checklist [34]. The data has been used in a paper concerning specific relationships between stressors and symptoms [14].

The adolescent sample intended to cover adolescents aged 13–19 years. The sample was drawn from the 7th, 8th and 9th grades of compulsory schools and from the 2nd grade of secondary schools. In Sweden, adolescents are present in the last three years of the nine year-compulsory school (1st to 9th grade, age 7–16). The student begins the 7th grade when he or she is 12 or 13 years old and finishes when he or she is 15 or 16 years old. Out of all compulsory schools and clustered by socioeconomic area, four schools were randomly chosen. From these schools, three classes from each grade were randomly chosen. From all secondary schools five classes were randomly chosen, clustered by different educational programs to cover different socioeconomic groups. Four-hundred and forty nine adolescents were asked to participate in the study. A total of 400 (89%, 400/449) adolescents agreed to take part in the study and answered a traumatic event checklist, (279 from the compulsory school and 121 from secondary school). The adolescent sample comprised 89 pupils from 7th grade, 90 pupils from the 8th grade and 100 pupils from 9th grade of compulsory school, and 121 pupils from 2nd grade of secondary school.

Measures

Traumatic event exposure

The Swedish translation of the life incidence of traumatic events (LITE) [13, 18, 19] was used. LITE is a short checklist about experience of traumatic events and consists of 15 fixed items and one optional (see Table 2). Each item asks if the event has occurred, how many times it has occurred, age at occurrence (the first time), and how much it upset the child then, and how much it bothers him/her now. The parent-report version (LITE-P) was used in the sample of younger children and the self-report (LITE-S) version in the adolescent sample. The test–retest reliability of the total score has been examined for the self-informant version, and has been found to be acceptable (r = 0.76) [22]. Only the occurrence of the different events was considered in our analysis. The total number of different traumatic events was used as a continuous score of polytraumatization (PT). Two

contrasting indexes were accomplished by summing up the occurrence for items 1–8, non-interpersonal events (nIPE), and items 9–15, interpersonal events (IPE) [14, 22].

Psychological symptoms

The parents of the younger children completed the parent version of the strengths and difficulties questionnaire (SDQ) [10] concerning problematic behaviour and symptoms observed in children. The Swedish version of the SDQ is a reliable and well-validated screening questionnaire [20, 34]. It consists of 25 principal items (scored 0, 1 or 2) that are added up to four problem subscales (emotional symptoms, conduct problems, hyperactivity/inattention and peer problems), and one strength/competence subscale (prosocial behaviour). The four problem subscales are summed to generate a total difficulties score. The total difficulties score was used as the main measure of psychological symptoms in the sample of younger children.

The adolescents completed the trauma symptom checklist for children (TSCC) [3]. TSCC is self-report questionnaire about trauma-related symptoms. It consists of 54 items (scored 0–3) used to generate six main clinical subscales (anxiety, depression, anger, posttraumatic stress, dissociation and sexual concerns) and two validity scales (hyperresponse and underresponse). The clinical scales are added up to a total score. The Swedish translation of the questionnaire has displayed satisfactory psychometric properties in Swedish adolescents [23]. The Total Score was used as the main measure of psychological symptoms in the adolescent sample.

Statistical analysis

All analyses were conducted separately for the younger child and adolescent sample. Due to non-response the *n* may vary between analyses.

The first aim was to describe the occurrence of potentially traumatic events, which was reported as absolute and relative frequencies, and differences between age groups and boys and girls which where analysed with analysis of variance (ANOVA). The second aim was to exploratively examine the influence of polytraumatization (PT) on the relationship between the occurrence of individual items and psychological symptoms. This was accomplished through a series of hierarchical multiple regression analyses, where dummy-coded age group and gender were entered in the first step (see Table 1 for description), then each event was entered, and last PT was entered. If the regression coefficient for the event remained largely unchanged after the PT addition this would indicate an independent effect of that event. On the other hand, if the event coefficient changed markedly, this would indicate that the event effect was dependent on the PT rather than on the independent effect alone. Since the item under investigation was included in the PT measure, this yields by necessity correlation between the predictors. Therefore we used alternative PT measures in these analyses by excluding the event under investigation from the total event count for each analysis. We conducted one regression analysis separately for each item; 15 regression analyses for each sample, 30 in total. Since the aim was to exploratively examine patterns in the data, no correction for multiple testing was employed. The third aim was to extend the importance of interpersonal events for psychological symptoms [14, 22] to adolescents, and explore potential gender differences in this association. This was accomplished through regressing psychological symptoms separately for boys and girls, on PT in one analysis and on IPE and nIPE in one analysis while controlling for age. The relative contribution of IPE and nIPE was examined by the beta coefficients. SPSS 14.0 was used for all analyses.

Results

Occurrence of traumatic events

See Table 1 for descriptive information for both samples. Traumatic events were common in both samples: 63% (n = 170) in the younger child sample and 89.5 % (n = 357) in the adolescent sample reported exposure to at least one event. The adolescent sample reported more traumatic life events than did the younger sample. This difference between the samples was similar both for interpersonal and non-interpersonal events, as well as at item level, see Table 2. The discrepancy was most marked for item 3 ("Seen someone else get hurt"), item 11 ("Been hit, whipped, beaten, or hurt by someone"), item 14 ("Been threatened") and item 15 ("Been robbed (or house robbed)").

In the sample of younger children the occurrence of all events or interpersonal events did not differ by age or gender (2 × 2 ANOVA, Ps > 0.05), older children had experienced slightly more nIP events (M = 0.8, SD = 0.9 nIPE for children aged 6–9 years, M = 1.1, SD = 1.1 nIPE for children aged 10–12 years, age main effect P = 0.024). In the adolescent sample, boys and girls did not differ, but older adolescents reported more events. Adolescents 12–15 years reported a mean of 2.7 (SD = 1.8) while adolescents 16–20 years reported a mean of 4.0

Table 3 Zero-order correlation coefficients (Pearson's *r*) of relevant variables in younger children (n = 262–270) and adolescents (n = 367–400)

Variable	Younger children				Adolescents			
	Symptoms[a]	PT	Age	Gender	Symptoms[a]	PT	Age	Gender
Symptoms[a]	–				–			
PT[b]	0.33***	–			0.47**	–		
Age	−0.14*	0.11	–		0.13*	0.29***	–	
Gender	0.19**	−0.10	0.00	–	0.23***	−0.01	−0.02	–
Item no 1	0.00	0.07	−0.01	0.06	0.16**	0.15**	0.11*	−0.04
Item no 2	0.15*	0.23***	0.08	0.01	0.09	0.21***	0.08	−0.06
Item no 3	0.03	0.27***	0.14*	0.05	0.23***	0.28***	0.13**	−0.13**
Item no 4	0.17*	0.22***	0.05	−0.04	0.21***	0.21***	0.04	0.14**
Item no 5	0.02	0.13*	0.08	0.00	0.13*	0.18***	0.30***	0.17***
Item no 6	0.03	0.07	0.06	0.04	0.15**	0.18***	0.11*	0.01
Item no 7	0.10	0.20**	−0.06	0.11	0.01	0.10	0.06	0.03
Item no 8	−0.07	0.03	0.06	−0.06	0.19***	0.25***	0.09	0.02
Item no 9	0.06	0.33***	0.18**	−0.03	0.42***	0.33***	0.14**	0.09
Item no 10	0.24***	0.31***	0.07	0.01	0.13*	0.16**	0.08	−0.06
Item no 11	0.44***	0.25***	−0.14*	−0.02	0.36***	0.32***	0.17***	−0.07
Item no 12	0.01	0.02	0.01	0.00	0.12*	0.16**	0.13*	−0.06
Item no 13	0.13*	0.23***	0.00	0.00	0.34***	0.22***	0.13**	0.09
Item no 14	0.36***	0.32***	−0.09	−0.08	0.30***	0.25***	0.04	−0.16**
Item no 15	0.07	0.07	−0.08	0.09	−0.06	0.04	0.03	0.03

*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$
[a]Total difficulties from the SDQ for the younger children, total score from the TSCC for the adolescents
[b]Polytraumatization. For each item correlation the relevant item was excluded from the calculation

(SD = 2.3) events (2 × 2 ANOVA, age main effect $P < 0.001$). This difference was similar for both nIP and IP events.

Individual events and polytraumatization

Zero-order correlations of the variables in the analyses are shown in Table 3. Corresponding to our second aim, a series of regression analyses were accomplished with psychological symptoms (Total score of the SDQ in the younger sample and of the TSCC in the adolescent sample) as the dependent variable, controlling for age and gender. In the first step the occurrence of the event was entered and in the second step the PT variable (excluding the relevant item in its calculation) was entered. This was repeated for each item, separately for the two samples. A summary of the regression analyses is displayed in Table 4. In the younger child sample, PT alone was highly related to symptoms. However, only 6 of the 15 individual events were singly predictive of symptoms. Of these, their independent contribution (the beta coefficient) diminished somewhat when PT was added to the model and for three events dropped below significance, indicating that their relation to symptoms to a large degree was dependent on the co-occurrence of other traumas. The events most strongly ($\beta > 0.30$) related to symptoms ("been hit" and "been threatened") seemed to contribute strongly to symptoms even when other traumas had been considered. In the adolescent sample, both PT and the individual items where more strongly related to symptoms than they were in the younger sample. Eleven of the individual items were significantly associated with symptoms in the bivariate regressions. Taking the occurrence of other traumas into consideration, their association to symptoms dropped for all events, and below significance for 6 models. Again, the items most strongly related to symptoms in bivariate analysis ("parents broke things or hurt each other", "been threatened" and "been made to do sex things") also contributed to symptoms independently of other traumas. It is noteworthy that all the events that displayed strong independent associations with symptoms were also classified as interpersonal events.

Interpersonal events and gender differences in impact

Our third aim was to examine any differences between boys and girls regarding the impact of PT, IPE versus nIPE, controlling for age. As can be seen in Table 5, PT was highly predictive of symptoms in all subgroups, and IPE was more strongly related to symptoms than was nIPE. While the analyses yielded similar results in the two samples of boys, there were

Table 4 Hierarchical regression analyses of psychological symptoms on individual traumatic events (step 1) and polytraumatization (PT) (step 2), of younger children (n = 268, criterion = total difficulties of the SDQ) and adolescents (n = 373, criterion = total score of the TSCC), controlling for age and gender

Predictor	Model	Younger children		Adolescents	
		Item beta	PT beta	Item beta	PT beta
Polytraumatization (PT)	Only PT	–	0.35***	–	0.47***
1. Been in a car accident	Without PT	0.01	–	0.15**	–
	With PT	−0.01	0.35***	0.09	0.45***
2. Been hurt in another kind of accident or sick in the hospital	Without PT	0.16**	–	0.09	–
	With PT	0.09	0.32***	−0.02	0.49***
3. Seen someone else get hurt	Without PT	0.06	–	0.26***	–
	With PT	−0.03	0.37***	0.15*	0.41***
4. Someone in the family in the hospital (hurt or sick)	Without PT	0.17**	–	0.18***	–
	With PT	0.11	0.31***	0.08	0.45***
5. Someone in the family died	Without PT	0.03	–	0.06	–
	With PT	−0.01	0.36***	−0.01	0.48***
6. Friend very sick, hurt or died	Without PT	0.05	–	0.13**	–
	With PT	0.03	0.34***	0.07	0.45***
7. Been in a fire	Without PT	0.08	–	0.01	–
	With PT	0.06	0.34***	−0.02	0.48***
8. Been in a hurricane, tornado, flood, or mudslide (circle within)	Without PT	−0.05	–	0.17***	–
	With PT	−0.05	0.35***	0.07	0.45***
9. Parents (or grown-ups) broke things or hurt each other	Without PT	0.08	–	0.39***	–
	With PT	−0.04	0.37***	0.29***	0.34***
10. Parents separated or divorced	Without PT	0.26***	–	0.13**	–
	With PT	0.18**	0.26***	0.06	0.45***
11. Been hit, whipped, beaten, or hurt by someone	Without PT	0.42***	–	0.37***	–
	With PT	0.37***	0.21***	0.27***	0.35***
12. Been tied up, or locked in a small space	Without PT	0.01	–	0.12*	–
	With PT	0.01	0.33***	0.06	0.45***
13. Been made to do sex things	Without PT	0.14*	–	0.32***	–
	With PT	0.07	0.31***	0.24***	0.41***
14. Been threatened (someone said they would do something bad)	Without PT	0.34***	–	0.35***	–
	With PT	0.26***	0.23***	0.26***	0.36***
15. Been robbed (or house robbed)	Without PT	0.08	–	−0.07	–
	With PT	0.05	0.34***	−0.08	0.49***

Numbers are standardized regression coefficients
*P < 0.05; **P < 0.01; ***P < 0.001

marked differences regarding the girls. For girls in the younger children sample, PT was considerably more weakly related to symptoms than in boys, owing to nIPE not being at all related to symptoms. In the adolescent sample, both IPE and nIPE were slightly more strongly related to symptoms in girls than in boys.

Discussion

In this study we found potentially traumatic life events, as measured by the LITE checklist, to be very common in children and adolescents. We also found indications for the impact of polytraumatization, i.e.,

Table 5 Summary of regression models of psychological symptoms on total traumatic events (model 1) and on interpersonal and non-interpersonal events (model 2), by gender and sample (younger children and adolescents), controlling for age

Predictor	Estimate	Younger children		Adolescents	
		Boys (n = 133)	Girls (n = 135)	Boys (n = 197)	Girls (n = 176)
Model 1					
Polytraumatization (PT)	Model R^2	0.22***	0.08**	0.19***	0.28***
Model 2					
Interpersonal events	Beta	0.39***	0.33***	0.38***	0.47***
Non-interpersonal events	Beta	0.17*	0.00	0.17**	0.23**
	Model R^2	0.24***	0.13***	0.21***	0.32***

*P < 0.05; **P < 0.01; ***P < 0.001

the number of reported potentially traumatic events, on psychological symptoms, above and beyond the influence of most individual potentially traumatic events. Furthermore, we found indications that the effect of polytraumatization differed between boys and girls, and support for a more pronounced impact of interpersonal versus non-interpersonal events.

The samples differed in at least three important methodological characteristics which are possible sources of the observed differences: age, informant and measure of psychological symptoms. The aim was to examine patterns in these two samples, not differences between them. It should be emphasized that the methodological differences in both samples confer validity to the results, since general models preferably should not be too sensitive to selection, sample or measurement issues. Thus, these sample discrepancies are viewed as a main strength of the study.

Reported incidence of traumatic events

Related to our first aim, we found that the occurrence of potentially traumatic events was very common in both samples; a majority reported exposure to at least one event, and in the adolescent sample the exposed fraction approached 90%. Considering this, the use of a simple screening instrument such as the LITE may be valuable in child and adolescent mental health care, since otherwise important information may easily be missed.

The impact of polytraumatization

In the exploratory analyses, the impact of polytraumatization (PT) was generally far stronger than the impact of the occurrence of specific events as displayed in the bivariate and multivariable analyses. This pattern was similar in both samples although the relationships were stronger in the adolescent sample, and much less so for several interpersonal events. These results are in accordance with Finkelhor et al. [7] in that the number of different traumas is considerably more important than specific events in affecting the mental well-being of children and adoelscents. The results of this study lead to similar conclusion about the theoretical perspective of Finkelhor et al. [7] despite several methodological differences; e.g., independent samples in a different cultural context and using other assessment methods such as life-time incidence of potentially traumatic events of the shorter LITE checklist instead of the more comprehensive victimization interview of Juvenile Victimization Questionnaire. One potential implication of these results may be that child and adolescent psychiatry units should consider utilizing a screening checklist such as the LITE in clinical practice. Even when there is a known index trauma, the information about multiple different kinds of traumatization may be quite valuable.

The generally weaker relationships observed in the sample of younger children could indicate poorer ratings of the parents in their assessment of traumatic experiences (discussed above) or symptoms. The TSCC in adolescent sample is clearly a questionnaire more designed for measuring trauma-related symptoms than the SDQ used in the younger sample, and parents may be less valid raters of post-traumatic symptoms [28, 33]. The use of multiple testing without any correction should be viewed with caution and attempts to draw any inferences from the results should be avoided. The aim was to exploratively examine patterns in relation to the importance of polytraumatization, not to confirm a hypothesis.

The impact of interpersonal events and gender

The interpersonal events were more strongly associated with symptoms than were non-interpersonal events, and this was consistently true across sample-gender subgroups, an extension of previous findings [14]. This importance of interpersonal events could possibly be explained by viewing the betrayal of one human being by another as a traumatic experience that the child has to cope with in addition to the threat of the event itself [11]. There were, however, two major differences between the subgroups: the relationships between PT and symptoms differed between boys and girls, and the direction of this discrepancy differed between two samples; it was much stronger for boys in the younger sample, but was stronger for girls in the adolescent sample. Methodologically, the result could depend on the combination of the gender distribution of symptom dimensions and on the suitability of the respective informants in the two samples. Theoretically, these results are consistent with a diathesis-stress model, where the gender shift in symptoms from childhood to adolescence reflects different periods of vulnerability [24]. However, as was mentioned above, the methodological discrepancies between the samples make any comparisons tenuous. These findings have to be confirmed in future studies. A gender effect on the impact of different kinds of potential traumas could be useful information in clinical situations, to get a better understanding of the differential risk traumas may present for different individuals.

There is a possibility that the strong association between interpersonal event and symptoms is confounded by other characteristics of the IPE, such as the IPE occurring repeatedly to a greater degree than the nIPE [17]. Counting the number IPE and nIPE reported as occurring only once versus those occurring two or more times did not lead to any indication that this was so; nIPE were slightly more of repeated type than IPE, in both samples (data not shown).

Limitations

Regarding the disparities in trauma incidence between the samples, the adolescents reported about three times more events than did the parents of the younger children. In examining the age-groups year for year, there was a rather distinct increase in reported events from the younger children to the adolescent sample (data not shown). This indicates that this frequency difference may depend to a large degree on an informant effect or on other unmeasured confounders. The parents may generally not be aware of all traumatic experiences, but they may also not be willing to disclose some events, particularly those such as child abuse any mention of which may raise sensitive issues. This would result in selective underreporting of important events that could distort the results. However, both interpersonal and non-interpersonal events were reported with similar discrepancies between the samples. Furthermore, the item relating to sexual abuse, item 13, was reported to be of comparable frequency in both samples. Item 9 and 12, both potentially standing for intra-family violence, were reported as being about twice as common in the adolescent sample which is not an impossible difference. Item 11 "Been hit…", 14 "Been threatened" and 15 "Been robbed" were all reported as substantially more frequent (3–6 times) in the adolescent sample. Since item 15 does not concern maltreatment, the higher frequencies of these items may partially stand for community violence and dating violence, which adolescents are more at risk for than children. This, in combination with the adolescent being older, and a general underreporting due to lack of knowledge of the parents might be the main explanations of the frequency differences between the samples. Cross-informant differences in the reporting of trauma incidence will in the near future be reported by the research group in a large sample of children, with both children and parents as informants.

The studies were cross-sectional. Although the traumatic events were asked for retrospectively, information was only collected regarding present symptoms. This could lead to misspecification of the causality since we do not know whether the symptoms predated the events. The risk for experiencing traumatic life events is indeed influenced by the mental health of the child [5, 31].

Both samples used only a single informant. Thus, common method variance may be a source of bias. This would lead to an overestimation of the relationships between traumatic events and psychological symptoms. Furthermore, although the total sample size amounted to 670 children and adolescents, some of the events were reported as very rare, which makes any confident assessment of their impact difficult due to low power. For example, only a few cases of item 13 (made to do sex things) were reported in both samples, and the effect of this item is thus hard to determine. The categorization of the LITE items into interpersonal and non-interpersonal events is potentially hazardous, these problems have been discussed elsewhere [14].

Socioeconomic status and ethnicity were excluded from the analyses since this information was only available for the younger sample. The inclusion of the demographic variables as covariates in analyses of the younger sample did not change the inferences from the results, however (data not shown).

Conclusions and future directions

This study indicates that both the accumulation of different traumas, polytraumatization, and the interpersonal quality of trauma as especially harmful aspects of trauma for both children and adolescents, and also indicates a possible moderating effect of gender as well. These results have to be confirmed in future studies. The significance of polytraumatization has to be studied in different contexts to avoid a possible misconception about the impact of single traumas. Still, future studies have to be designed and analyzed to investigate events or situations that have an independent importance beyond the importance of the number of potential traumas, because of the specific attributes of the individual trauma. This is important if studies are to yield a balanced and evidence-based view of the complex interaction of the quantity and quality of potentially traumatic experiences in determining the impact on the adjustment of children and adolescents. Ultimately, this is a fundament for identifying high-risk groups and developing effective treatments. In clinical practice of traumatized youth the results underscore the importance of obtaining a comprehensive anamnesis rather than being satisfied with focusing on and planning treat-

ment for the presented trauma. Furthermore, the use of a simple trauma checklist to screen for a diverse set of potentially traumatic events a child or adolescents has been exposed to may also be helpful in a range of clinical situation concerning the well-being of youth, and may provide considerable help in yielding a picture of the traumatic burden of the youth.

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